

## **Summary of EPA's Responses to Public Comments on the Approval of the Goliad Aquifer Exemption**

### **Introduction**

In May of 2011, the Texas Commission on Environmental Quality ("TCEQ") requested EPA approve an aquifer exemption for a portion of the Goliad Formation as a non-substantial revision to its approved Underground Injection Control (UIC) program. Prior to requesting EPA approval, TCEQ provided public notice of the aquifer exemption and conducted a hearing. After a detailed evaluation of the request, EPA approved the aquifer exemption on December 4, 2012. The effect of EPA's approval of an aquifer exemption is that the portion of the aquifer covered by the exemption is no longer protected as an underground source of drinking water ("USDWs") under the Safe Drinking Water Act ("SDWA"). Along with a UIC permit(s) issued by TCEQ, the exemption allows the applicant, the Uranium Energy Corporation ("UEC"), to operate an in-situ uranium mining operation within the exempted area of the aquifer.

On January 18, 2013, a group of interested citizens filed a petition for review of EPA's final agency action in the Fifth Circuit Court of Appeals (Case No.13-60040). They requested that the Court vacate the aquifer exemption, or in the alternative, remand the aquifer exemption to EPA to conduct a hearing and allow public comment on the exemption. In response, EPA asked the Court for a voluntary remand of the aquifer exemption decision without vacating the exemption in order to allow the Agency to offer an opportunity for public notice and comment. The court granted EPA's request, and therefore, EPA sought comments on the aquifer exemption. EPA considered all oral and written comments submitted from January 8, 2014 to February 14, 2014 to determine whether the Agency should withdraw its approval of the aquifer exemption or reaffirm it. This Summary begins with a general explanation of EPA's scope of review followed by a summary of relevant comments received and EPA's corresponding response.

EPA received submittals from over 30 commenters. Copies of the public hearing transcript and the comments received appear online at: <http://www.epa.gov/region6/water/swp/groundwater/goliad-aquifer/>. Please note that this document does not include every individual comment verbatim, but instead includes condensed and edited summaries of relevant comments.

### **General response to comments related EPA's scope of review:**

#### **I. BACKGROUND**

Congress enacted the Safe Drinking Water Act ("SDWA"), 42 U.S.C. §§ 300f - 300j-26, in 1974 to ensure that the nation's sources of drinking water are protected against contamination. Part C of the SDWA, 42 U.S.C. §§ 300h - 300h-8, was enacted for the purpose of protecting groundwater that is or may be a source of drinking water. As required by the SDWA, EPA established a regulatory program "to prevent underground injection which endangers drinking water sources," promulgated regulations containing minimum requirements for State underground injection control ("UIC") programs, and directed all States identified by EPA to submit UIC programs meeting those minimum requirements. 42 U.S.C. § 300h-1; see 40 C.F.R. § 144.1. Once EPA approves a State's program as meeting the requirements of SDWA and EPA's implementing regulations, the State has "primary enforcement authority" and is thereby responsible for implementing and enforcing the approved program. EPA, nonetheless, retains the ability to enforce the State's approved program, 42 U.S.C. § 300h-2; 40 C.F.R. § 147.1(e), and to take

action in the event of an imminent and substantial endangerment to the health of persons, 42 U.S.C. 300i.

EPA's regulations establish six classes of injection wells within the UIC program, based on the purposes of the injection wells to which they apply. 40 C.F.R. § 144.6. This matter involves Class III wells associated with *in situ* extraction of uranium. See 40 C.F.R. § 144.6(c). EPA has approved the State of Texas' UIC program for Class III injection wells. See 40 C.F.R. § 147.2200. In most instances, it is implemented by Texas Commission on Environmental Quality ("Texas" or "TCEQ") under the State's Injection Well Act, Tex. Water Code Ch. 27. See 40 C.F.R. § 147.2200.

The purpose of EPA's UIC regulations and all EPA-approved State UIC programs is the protection of underground sources of drinking water ("USDWs") from endangerment as a result of underground injection. 42 U.S.C. § 300h (b)(1). EPA's regulations prevent endangerment by prohibiting injection activities that allow the movement of fluid containing contaminants into a USDW if the presence of the contaminants may cause a violation of drinking water standards or otherwise adversely affect the health of persons. 40 C.F.R. § 144.12. A USDW is defined broadly in EPA's regulations to include an aquifer or its portion:

- (a)
  - (1) which supplies any public water system; or
  - (2) which contains a sufficient quantity of ground water to supply a public water systemand
  - (i) currently supplies drinking water for human consumption or
  - (ii) contains fewer than 10,000mg/l total dissolved solids; and
- (b) is not an exempted aquifer. (C.F.R. § 144.3)

## II. AQUIFER EXEMPTIONS

An aquifer that fits the definition of a USDW is protected by the UIC program even if it has not been identified in the State UIC program as a USDW. 40 C.F.R. § 144.1(g). However, in recognition of the broad definition of USDWs, the stringency of the "non-endangerment" standard in 40 C.F.R. § 144.12, and the commercial use of underground injection, an aquifer may be designated as an "exempted aquifer" – i.e., aquifers that would otherwise qualify as USDWs but meet the criteria for exemption in 40 C.F.R. § 146.4. See H.R. Rep. No. 93-1185, 93rd Cong., 2d Sess., reprinted in 4 1974 U.S. Code, Cong. & Admin. News 6454, 6480-6484.

Due to the nature of in-situ uranium mining, aquifer exemptions are typically needed prior to commencement of a Class III (in-situ uranium mining) operation. The process of in-situ uranium mining involves the injection of lixiviant, an oxygenated, carbonated liquid, into a subsurface uranium-bearing geologic formation to liberate uranium minerals. The fluid is subsequently recovered to capture the dissolved uranium. Because in-situ production of uranium often occurs in aquifers, it typically requires an aquifer exemption to avoid violating 40 C.F.R. § 144.12 which generally prohibits the movement of fluid containing contaminants into a USDW.

## III. STATE-ISSUED PERMITS

A UIC permit authorizes injections into UIC wells and is needed even when the injection is in an exempted aquifer because of the potential for the injection to adversely affect adjacent USDWs. For

approved States, the UIC permit is issued by the State and there is no formal EPA review of the UIC permit. *See generally* 40 C.F.R. Part 145. EPA regulations for Class III permits for injection associated with in situ production of uranium do include, however, specific requirements related to the construction of the injection and monitoring wells, 40 C.F.R. § 146.32, operation and monitoring of the wells, 40 C.F.R. § 146.33, plugging and abandonment of the wells, 40 C.F.R. § 146.10, and other necessary terms as conditions are included in Class III permits when applicable, such as requirements for financial assurance. (40 C.F.R. 144.52(a) and (a)(7)). States with approved UIC programs must have the legal authority to implement these, or more stringent, provisions. 40 C.F.R. § 145.11.

#### IV. REVISIONS TO STATE ADMINISTERED PROGRAMS

A State's designation of an exempted aquifer is not effective until EPA approves the designation as part of the initial State program approval or revision thereto. 40 C.F.R. § 144.7(b)(2). If a State with an EPA-approved program identifies an exempted aquifer after initial program approval, the State is required to provide public notice and an opportunity for a public hearing on the aquifer exemption. 40 C.F.R. § 144.7(b)(3). Then the State must submit the exemption to EPA for review. *See* 40 C.F.R. §§ 144.7(b)(3) and 145.32. If an aquifer exemption is based on the criteria set forth in 40 C.F.R. § 146.4(b), as is the case here, it is treated as a UIC program revision under 40 C.F.R. § 145.32. EPA must approve all program revisions before they become part of the EPA-approved UIC program.

#### V. EPA'S SCOPE OF REVIEW

In evaluating TCEQ's request for EPA to approve the aquifer exemption, EPA considered whether the facts warrant finding that the portion of the aquifer exempted by the State meets the criteria in 40 C.F.R. § 146.4. As relevant here, those criteria provide:

An aquifer or portion thereof...may be determined an "exempted aquifer" if it meets the following criteria:

- (a) It does not currently serve as a source of drinking water; and
- (b) It cannot now and will not in the future serve as a source of drinking water because:
  - (1) It is mineral, hydrocarbon or geothermal energy producing, or can be demonstrated by a permit applicant as part of a permit application for a Class II or Class III operation to contain minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible.

40 C.F.R. § 146.4(a)-(b).

Accordingly, EPA limited its review of TCEQ's aquifer exemption to facts relevant to these criteria. Specifically, EPA examined the information in the record to determine whether the portion of the aquifer proposed for exemption currently serves as a source of drinking water and whether UEC demonstrated in its Class III permit application that the area proposed for exemption contains minerals that, considering their quantity and location, are expected to be commercially producible. Based on EPA's review of the information in the record relevant to those questions, and the comments EPA

received during the public comment period for this exemption, EPA is partially approving TCEQ's aquifer exemption request and withdrawing its previous approval for a portion of the aquifer exempted by the State. The EPA-approved aquifer exemption is a revision to TCEQ's UIC program.

Many commenters raised concerns related to the permit or Production Area Authorization (PAA-1) for the mining operation. However, in making its exemption determination, EPA did not evaluate the State-issued UIC permit or PAA-1 that will apply to UEC's mining operation. Because TCEQ has "primary enforcement authority", it is responsible, in the first instance, for implementing and enforcing the approved UIC program, including laws and regulations that meet EPA's minimum standards for state primacy, including certain minimum requirements for Class III permits. For example, 40 C.F.R. §§ 145.11(2), 144.52 and 146.32(e), together, establish certain minimum standards for monitoring wells in Class III permits issued by States with primary enforcement authority. Requirements in the UIC permit and the PAA-1 related to monitoring, corrective action, financial assurance, and post-mining restoration requirements, including baseline water quality parameters and upper control limits, are not relevant to the regulatory criteria applicable here for an aquifer exemption. Concerns about those provisions need to be addressed to TCEQ, the permitting authority for this injection.

Similarly, EPA did not consider issues such as surface reclamation or UEC's exploratory drilling, or post-mining restoration – a phase of the project governed by laws and regulations other than the Safe Drinking Water Act that are implemented by another federal agency (the Nuclear Regulatory Commission) in partnership with Texas.

Even though EPA did not consider the UIC permit or the PAA in determining to partially approve the aquifer exemption, there is a regulatory scheme in place, implemented by both TCEQ and EPA, designed to protect underground sources of drinking water adjacent to the exempted portion of the aquifer. EPA retains the ability to enforce the State's approved program. 42 U.S.C. § 300h-2; 40 C.F.R. 147.1(e). EPA also has broad authority, to take any action necessary to prevent an imminent and substantial endangerment to the health of persons where the State or local authorities have not acted to protect the health of such persons. 42 U.S.C. § 300i. Actions EPA may take include issuing orders requiring the provision of alternative water supplies by persons who caused or contributed to the endangerment and commencing civil action for appropriate relief, including a restraining order or permanent or temporary injunction. 42 U.S.C. § 300i. Therefore, EPA believes that the combination of State and federal permits and authorities, along with the withdrawal of part of the aquifer exemption, should prevent endangerment of the underground sources of drinking water for the persons that rely on that water as their current source.

### Summary of Comments and EPA Responses

- 1. Comment:** Dr. Richard Abitz comments that it is scientifically indefensible for EPA to isolate a fraction of the Goliad aquifer based on a 33 hour pump test and Dr. Neil Blandford also questions the sufficiency of such a pump test when existing plugging records, sandy materials, and the efficacy of the confining strata that overlie that portion of Sand B (Production Area 1 or PA-1) is not well known.

**Response:** At the time EPA reviewed the 33-hour pump test, EPA believed the ground water flow direction in the area was to the southeast and the possibility of wells to the southeast capturing water was being evaluated. The test was used by UEC in an effort to assess the condition of the many abandoned exploratory wells at the site and was conducted in an area with a dense

concentration of these wells. The results of the test, along with the decreased extent of the aquifer exemption area, provided enough information for EPA to conclude that sufficient isolation between Sand A and Sand B exists for the purpose of showing no impacts to the projected capture zones (for a discussion of capture zones of wells, see EPA's Statement of Basis for its decision) of the drinking water wells to the southeast. Also, since that time, the ground water flow direction has been shown to be eastward in the eastern portion of the graben, which further isolates the capture zones of wells to the southeast.

2. **Comment:** The Goliad County Groundwater Conservation District ("GCGCD") would like to know why were those planned pump tests in the vicinity of the southeast (SE) fault utilizing church wells and property never done. What was the reason for not conducting these critical pump tests?

Hydrologic data in area of the SE fault is necessary to make a comprehensive determination of aquifer transmissivity and ground water flow direction. Why were pump tests in that area never done?

**Response:** The comments make reference to an EPA proposed pump test in the vicinity of the church wells southeast of the site. The purpose of the test was to study the effects of pumping Sand B down and determining any impact that might have on Sand A (see pdf 492). This proposal was dependent on the joint cooperation of the Church and UEC. The level of cooperation necessary to conduct the tests by both parties was never reached.

Nonetheless the reduced exemption area boundary further separating the Church wells from the exemption and indications of a west to east flow direction directing capture zones away from the exemption area negated the necessity for the proposed test.

3. **Comment:** EPA has not considered the possibility of drinking water wells capturing contaminated ground water after the mining operations have ceased. Several studies reveal that complete restoration of ground water back to initial baseline conditions have yet to occur. ISL operators are permitted by TCEQ and EPA to pollute ground water in Texas and then walk away.

**Response:** EPA's analysis did consider whether existing drinking water wells could capture ground water from the exemption area over their lifetimes and after mining operations have ceased.

EPA agrees with the commenter that the overwhelming body of evidence suggests that almost no In-situ Leaching (ISL) mining site has successfully brought all measured contaminants back to background concentrations. See "General response to comments related to the EPA's scope of review" above.

4. **Comment:** One commenter provided several recommendations regarding restoration values, sampling regime and timeframe for restoration.

**Response:** Restoration of an exempted aquifer is not required by SDWA or EPA's UIC regulations. Minimum applicable EPA requirements for approved programs at 40 CFR § 145.11 include minimum requirements for Class III UIC permits, including 40 CFR § 144.51(o)(1) and part 146 (see 40 CFR §§145.11(19) and (20). Section 144.51(o) requires Class III permits to "ensure that plugging and abandonment of the well will not allow the movement of fluids into or between a USDW." Section 146.10(a)(1) provides that Class III wells "shall be plugged with cement in a manner which will not

allow the movement of fluids either into or between underground sources of drinking water” and 146.10(a)(4) provides that “the plugging and abandonment plan in 40 CFR §144.51(o) and 144.52(a)(6) shall, in the case of a Class III project which underlies or is in an aquifer which has been exempted under § 146.4, *also* demonstrate adequate protection of USDWs” (emphasis added). It also provides that the Director of the permitting agency (TCEQ) “shall prescribe aquifer cleanup and monitoring where he deems it necessary to insure adequate protection of USDWs.” See also “General response to comments related to the EPA’s scope of review” above.

5. **Comment:** Restoration at in-situ leaching mines (ISL) in Texas is a failure and a USGS report that has concluded that no uranium well field for which final sample results are available, demonstrates complete restoration of all contaminants to background levels. The commenter suggests several concerns increasing the potential of contamination after restoration ceases. Lixiviant may persist within the aquifer after restoration efforts, giving rise to contamination after restoration efforts have ceased. Oxidic ground water from up-gradient may flow into the mined aquifer, inhibiting the reduced environment necessary for stabilization of the aquifer to natural conditions. The period of time for monitoring and determining stabilization after restoration activities have ceased is generally 6 months. This period may not be long enough.

**Response:** EPA is aware of the findings in the USGS report (Open-File Report 2009-1143). EPA agrees restoration generally does not result in all target contaminants returned to baseline conditions, although many are.

Little data exist at this time with regards to long term impacts of restoration efforts. EPA is expecting to publish a proposal to study the potential for long-term concerns, such as plume migration off-site, in the Federal Register. To that end the EPA and the Nuclear Regulatory Commission (NRC) are in process of selecting long term monitoring projects at restored uranium ISL mining sites. See also “General response to comments related to the EPA’s scope of review” above.

6. **Comment:** Restoration generally doesn’t achieve desired results and restoration level waivers are typically granted by the permitting authority.

**Response:** EPA agrees with this comment. While complete and permanent restoration generally remains an objective yet to be achieved, current restoration requirements do improve post-mining water quality as indicated by a USGS study (Open-File Report 2009-1143). See also “General response to comments related to the EPA’s scope of review” above.

7. **Comment:** Up to 90% of the concentrate uranium remains unrecoverable according to EPA. This poses health risks to people and workers in the future.

Thorium half life is 77,000 years. Radium half life is 1,600 years. Radon gas is 4 days. UEC says they will monitor 2 years after mining ceases.

Uranium in-situ mining is not safe. It is impossible to return the aquifer to normal once the mining has been completed. The mining requires a tremendous amount of our south Texas precious water.

**Response:** Commenters raised concerns over the longevity of radioactive elements left in place after mining and the potential exposure this poses to workers in the future. EPA acknowledges that a portion of radioactive material remains mobile after mining. This portion is usually significantly

reduced by restoration activities. The effectiveness of the restoration program is not a consideration under the regulatory criteria for aquifer exemption. In addition, the volume of ground water used in the mining process is an issue for the primacy enforcement authority of TCEQ. Water quantity allocation is a state issue outside of the jurisdiction of the EPA. See also "General response to comments related to the EPA's scope of review" above.

8. **Comment:** Regulators should devote as much time to defining baseline ground water as to post-operational trend monitoring (Science Advisory Board (SAB) report 2/17/2012).

A single sample from each baseline well is insufficient to determine background chemistry at the sample location (SAB report 2/17/2012).

**Response:** See "General response to comments related to the EPA's scope of review" above.

9. **Comment:** Several comments were gathered from a powerpoint presentation provided by Dr. Richard J. Abitz, along with his written comments titled *Pre- and Post-Mining Water Quality at ISL Sites*. The presentation includes numerous slides with data drawn from the uranium mining site know as Kingsville Dome (KVD) near Kingsville, Texas (slides nos. 15, 21, 28, 29,30, 33 and 34) .

Slides nos. 3–9 indicate that natural background levels are difficult to measure after the exploratory drilling phase of the project. Exploratory wells are drilled in equal-spaced patterns, with each succeeding round of wells drilled between those wells reflecting higher concentrations of uranium. This technique results in a large number of wells concentrated in areas of greatest uranium deposits. Drilling causes a mechanical disturbance of the aquifer giving rise to turbidity and can further impact baseline water quality if air is used as a lifting mechanism to remove debris caused by the drilling process. This method of drilling introduces oxygen in the air into the formation causing oxidation in the ore zone allowing more uranium to be released from the host rock. Slide no. 7 suggests over 900 exploratory wells were drilled in Goliad prior to sampling for baseline purposes.

Slides nos. 18-20 show the sampling results for uranium and radium collected from 14 production test wells in Sand B collected in April 2008, July 2009, and November 2009. Over that time period the charts show uranium concentrations substantially diminished while radium diminished only slightly overall.

**Response:** Data specific to the KVD site are not relevant to EPA's decision at Goliad and EPA makes no attempt to address that data in this response. However, several slides provide comments that are beyond the scope of EPA's aquifer exemption authority and warrant recognition and a response. Other than determining if an aquifer meets the definition of a USDW, (specifically, whether the aquifer contains water with less than 10,000 TDS), there are no quality of water requirements affecting an aquifer's eligibility for an exemption.

EPA acknowledges that exploratory drilling could potentially disturb the aquifer and increase the possibility of higher turbidity in any water quality analysis. Further, EPA agrees if oxygen is introduced into a target aquifer containing ore deposits, oxidation could possibly release uranium or other constituents from the host rock. This process could feasibly lead to artificially elevated natural water quality background concentrations, which may result in higher than intended target restoration concentrations.

EPA also acknowledges the apparent but separate natural attenuation rates for uranium and radium indicated by two charts provided in the presentation. These slides reflect that over a one and a half year period, uranium precipitated out of solution at a more rapid rate than did radium. Impacts to adjacent non-exempted aquifers are regulated pursuant to TCEQ's approved UIC program. See also "General response to comments related to the EPA's scope of review" above.

- 10. Comment:** Slide no. 25 provides concerns regarding the spacing between wells in the monitor well ring. Monitor wells spaced too far apart may not capture preferential flow paths, especially within fluvial sediments. Slide no. 16 reflects that monitor well completion intervals can also impact representative ground water samples by limiting the vertical portion of an aquifer open to the wellbore.

**Response:** Monitoring wells and the criteria for placement of monitor wells in an ISL mining operation are under the jurisdiction of the state permitting program. EPA's regulations require approved State programs to have the legal authority to implement 40 CFR part 146, including § 146.32(e) for Class III wells where injection is into a formation which contains water with less than 10,000 mg/L TDS. Section 146.32(e) requires monitoring wells to "be completed into the injection zone" and "located in such a fashion as to detect any excursion of injection fluids outside the mining area or zone." See also "General response to comments related to the EPA's scope of review" above.

- 11. Comment:** Slides 28 - 31 suggest no basis for the values derived for upper control limits (UCLs). UCLs are concentration levels assigned to certain contaminants or water quality thresholds that are used to identify excursions. UCLs are determined by increasing the maximum concentration values for chlorides and conductivity, collected from production wells, by an additional 25%. UCLs for uranium are set at 5 mg/l over the maximum value detected in the production wells.

**Response:** EPA's UIC program has no requirements for the values derived for upper control limits (UCLs) assigned to detect excursions through periodic ground water monitoring in a Class III injection activity. See "General response to comments related to the EPA's scope of review" above.

- 12. Comment:** EPA has chosen to rely on and manipulate a subset of data much smaller than what was supplied by UEC to make its determination, thus ignoring a much larger body of data including EPA Guidance and statistical protocols.

**Response:** EPA's review was focused on information relevant to its authority under EPA regulations (40 CFR § 146.4) for evaluation of aquifer exemption requests. EPA reviewed abundant information in an effort to identify any additional relevant information. EPA also requested additional information in order to determine whether the aquifer exemption granted meets the exemption criteria at 40 CFR § 146.4.

- 13. Comment:** UEC's exploratory well drilling methods oxidized the uranium ore releasing metals into the ground water. UEC then exercised a bias in selecting and collecting ground water samples from wells located and screened in ore zones, not across the entire sand interval. UEC then used invalid statistical methods to determine baseline water quality data leading to the conclusion the water within the exemption did not meet drinking water standards.

**Response:** This comment is not relevant to the criteria for exemption that EPA relied on in this case. EPA's determination to approve an aquifer exemption was based on a finding that the regulatory criteria in 40 CFR § 146.4(a) and (b)(1) were met. In making the determination to approve the aquifer exemption, EPA did not consider facts related to the criteria in 146.4(b)(3) (related to water quality) for which baseline water quality levels might be relevant. Exploratory well drilling methods, sampling/monitoring, well completion standards, ground water sample selection or statistical analysis of those samples to determine background water quality are activities regulated by the Railroad Commission of Texas (RRC) and the TCEQ, pursuant to its approved UIC program. See also "General response to comments related to the EPA's scope of review" above.

- 14. Comment:** EPA should use the Science Advisory Board's (SAB's) recommendations as they reevaluate their decision on whether to approve the aquifer exemption application.

**Response:** The SAB recommendations were not directed to UIC regulations for the aquifer exemption process. EPA is in the process of developing proposed revisions to its regulations in 40 C.F.R. part 192 to add new public health, safety, and environmental protection standards to regulations published under the Uranium Mill Tailings Radiation Control Act of 1978 ("UMTRCA"); EPA expects that those proposed revisions will appropriately incorporate advice from the SAB's Radiation Advisory Committee's report of Feb. 17, 2012.

- 15. Comment:** EPA discusses errors, changes, and assumptions, but it provides insufficient scientific data to support its decision.

**Response:** The additional public notice and comment opportunity conducted by EPA, in January and February 2014, has provided additional valuable information. EPA's analysis of that additional data has resulted in the withdrawal of EPA's approval of exemption for the area north of the Northwest Fault ("NW fault"). Additional review of the data has also yielded more confidence in EPA's earlier finding that the ground water flow direction within the graben is from west to east. See EPA's Statement of Basis for its decision.

- 16. Comment:** There is no evidence in the record providing a rationale for EPA to reevaluate or second guess its decision.

**Response:** See response to Comment 15.

- 17. Comment:** Why was the data that was chosen favorable to UEC and not to the protection of the drinking water wells? The UEC aquifer exemption should be revoked because every single independent scientific analysis of the proposed mining in Goliad County indicates that in-situ mining should not occur in this aquifer.

**Response:** EPA approved the aquifer exemption based on its independent expertise and evaluation of whether the regulatory criteria for an aquifer exemption at 40 C.F.R. § 146.4(a) and (b)(1) were met. In making that determination, EPA considered the whole administrative record, including raw data that it independently analyzed. EPA scrutinized the veracity of the data it received, rejected some UEC-provided explanations for adverse findings, and used what EPA believes is credible evidence where appropriate.

**18. Comment:** UEC noted that no new and significant technical information was presented at the hearing. As such EPA has no technical basis for reversing its initial decision.

**Response:** EPA has the authority to withdraw or modify its approval of an aquifer exemption. EPA's review is not limited to what is presented at a public hearing. EPA did receive written comments that included new and significant technical information.

**19. Comment:** EPA thoroughly reviewed water levels that were taken from multiple measuring events, not from a single monitoring event. UEC provided additional water level measurements that were collected in September 2012.

**Response:** Several technical comments received during the public participation process concerned the data or lack thereof. As a result, EPA re-reviewed multiple measuring events including some where no raw data had been previously provided by UEC. This review raised additional concerns. As a result, EPA traveled to the site to witness directly the collection of ground water elevation data. EPA witnessed the data collection method and verified the quality of the data collected. EPA's contour evaluation of that new data revealed no change to the overall ground water flow direction.

**20. Comment:** Local water is contaminated by the mining operations.

**Response:** EPA recognizes that local water in the portion of the aquifer that is exempted will be contaminated by the mining operations. It is the nature of the mining process. Mineral deposits affixed to host rock and immobile are chemically treated to be released from the host rock so that they might be collected and produced through production wells. The local ground water provides the base and is the carrier for the oxygenated mix that will cause this release to occur. The detrimental effects of this process on the ground water are recognized. That is why the aquifer must qualify for an aquifer exemption prior to being mined.

**21. Comment:** Current use has meaning in space and time as contemplated in the original EPA request for mathematical modeling. The rationale for the proposed exemption has little or nothing to do with the Safe Drinking Water Act ("SDWA"). The modeling should be done.

**Response:** The term "current use" was a short-hand term used early in the exemption process to describe the first criteria for exemption at 40 CFR § 146.4 (a); however, it is important to note that the term "current use" does not actually appear anywhere in the UIC regulations. Rather, 40 CFR § 146.4 reads that the aquifer or portion thereof to be exempted must "not *currently* serve as a [current] source of drinking water". Accordingly, the term "current source" more accurately describes the first criteria in 40 CFR § 146.4 (a).

While EPA initially recommended modeling consisting of a ground water transport analysis and, if needed, a "chemical-fate" analysis, EPA also contemplated that TCEQ or UEC could use alternate methods to make the necessary demonstration that the criteria for exemption are met (Letter to Zak Covar dated May 16, 2012). In the end, TCEQ agreed to reduce the proposed exemption from 423.8 acres to 96.17 in Sand A and 307.03 acres in Sands B, C, and D. Also, rather than rely on numerical modeling, EPA developed an alternative methodology for a "capture zone analysis," in order to qualitatively determine whether nearby wells would draw from the proposed exemption area. (See EPA's Statement of Basis for its decision). Thus, although EPA did not have the numerical

modeling analyses it had initially requested, EPA utilized groundwater elevation data sets, contour maps of these data sets, geologic cross sections, water well capture zone calculations, pump test data, and related maps to support its decision.

- 22. Comment:** EPA's role of aquifer protection under the Safe Drinking Water Act and its recent view about individual wells is a clear contradiction.

**Response:** See "General response to comments related to the EPA's scope of review" above.

- 23. Comment:** EPA should follow the Science Advisory Board's recommendations on baseline determination and statistical practice as they reevaluate their decision on Goliad aquifer exemption application.

**Response:** The SAB recommendations were not directed to UIC regulations for the aquifer exemption process. EPA is in the process of developing proposed revisions to its regulations in 40 C.F.R. part 192 to add new public health, safety, and environmental protection standards to regulations published under the Uranium Mill Tailings Radiation Control Act of 1978 ("UMTRCA"); EPA expects that those proposed revisions will appropriately incorporate advice from the SAB's Radiation Advisory Committee's report of Feb. 17, 2012. See response to Comment 14.

- 24. Comment:** EPA should rescind this aquifer exemption until methodologies consistent with those proposed by EPA's Science Advisory Board have been implemented (SAB report on February 17, 2012).

**Response:** The SAB recommendations were not directed to UIC regulations for the aquifer exemption process. The recommendations proposed by the SAB's February 17, 2012 report provide considerations on how to characterize and determine background water quality. The SAB's recommendations do not inform or address the regulatory criteria in 40 CFR § 146.4 for aquifer exemptions. See also "General response to comments related to the EPA's scope of review" above.

- 25. Comment:** This aquifer exemption doesn't meet the criteria (40 CFR § 146.4) in order to grant aquifer exemption.

**Response:** After a comprehensive review of all the public comments, new data, and re-examination of the previous data, EPA is in partial agreement with the commenter. EPA finds that there is not enough data on ground water gradient north of the NW fault to make a determination on the direction of ground water flow in that area. Without that information, the orientations of the capture zones of the wells of concern to the northwest of the exemption area are in question. Therefore, EPA is withdrawing that portion of the exemption north of the NW fault until the applicant can provide sufficient data to definitively demonstrate that area does not currently serve as a source of drinking water.

- 26. Comment:** The process of in-situ uranium exploration and mining is flawed. Exploration wellbores introduce oxygen which mobilizes uranium and liberates radium. Baseline water quality sampling wells also introduce oxygen and therefore do not produce samples that are representative of true

background conditions. Since the whole background ground water quality assessment process is flawed, the entire permitting, aquifer exemption and restoration process is flawed.

**Response:** Beyond providing evidence that minerals exist in commercially producible quantities, the State's process for determining baseline is not a factor in EPA's process to evaluate an exemption.

**27. Comment:** Surface reclamation is an important part of the overall site authorization.

**Response:** Surface reclamation is not one of the criteria used in the review of an aquifer exemption (40 CFR § 146.4). TCEQ determined that UEC's mine application contained sufficient operational measures to comply with the mine permit's prohibition against discharge of fluids into surface water. The specific regulatory requirements for containment of surface fluids are included in a radioactive material license (RML). An in-situ uranium mine operator is required to have a RML through TCEQ under NRC delegation. See also "General response to comments related to the EPA's scope of review" above.

**28. Comment:** RRC found UEC in violation of leaving more than 70 boreholes unplugged.

**Response:** EPA contacted the RRC and confirmed that there is no pending enforcement action against UEC for unplugged wellbores. EPA has a RRC inspection report stating that the inspector had previously found only 6 of 117 wells plugged according to permit specifications. UEC received a notice of violation for this and upon the inspector's return, the inspector found all wells plugged according to the permit. The Notice of Violation was terminated. See also "General response to comments related to the EPA's scope of review" above.

**29. Comment:** Lawrence Dunbar commented that EPA assumed a southeast flow direction (based on regional background) for the wells of concern to the northwest, but has no data points to support this assumption. Other directions of ground water flow are indicated by the limited data in this area.

Other commenters noted that EPA's Sand A contour map also shows a point just northwest of the NW fault where the ground water is approximately 30' higher than the nearby point on the south side of the fault. It is also higher than what is typically seen in wells on the north side of the fault (approx. 170 feet). This supports the previous observation by Dunbar that water is seemingly originating at this location of the NW fault and moving across the fault into the vicinity of the exemption area near well BMW-7. It also supports a possible northwest direction of flow on the northwest side of the fault in this area. Both of these are contrary to EPA's interpretation that the southeast regional gradient continues to the NW fault and the capture zones for the northwest wells of concern extend to the northwest. This information indicates a possible recharge area here. This is consistent with the topography (high) in this area and is supported by the fact that the Sept 2012 data is the lowest elevation measurements of any data set.

Why did EPA choose not to address the issue that the peak showing local ground water mounding just north of the NW fault? This indicates that nearby drinking water wells are downgradient of the fault because of aquifer recharge.

**Response:** The commenters are correct that EPA has no raw data points to confirm the regional gradient is from the northwest to the southeast. The gradient was provided within the narrative of

the application and is in agreement with the generally accepted understanding that the regional gradient is toward the coast to the southeast. In an effort to assess this comment, EPA re-examined the available data to evaluate the possibility of ground water mounding resulting from recharge in the area described by the commenter. This analysis included a comparison of Sand A ground water elevation data in and near the possible recharge area with those of Sand B. Sand A water elevations are approximately two to five feet lower than Sand B water elevations in areas south of the NW fault for this data set (September 2008). Based on the limited data north of the fault, this relationship is significantly different, with the lone Sand A water elevation point (well PT-AU) being approximately 24 feet *higher* than the highest Sand B point north of the NW fault. EPA acknowledges this suggests mounding of ground water in Sand A. EPA then re-examined electric logs from cross-sections focusing on the Sand A proximity to the ground surface north of the NW fault. These logs are consistent with possible surface recharge of Sand A in areas north of the NW fault. EPA also carefully examined the topographic contours from base maps used for ground water elevation contouring and confirmed the topographic high reported by the commenter.

Based on the assessment described above, EPA requested a water level measurement in well PT-AU during its March 24-25, 2014 site visit. The resulting measurement indicated no standing water in the well. The well was only approximately 3.5 feet deeper than the September 2008 water level measurement. UEC indicated the September 2008 level was probably remnant water from the completion of the well. Since Sand A water levels measured in March 2014 were over 3 feet lower than September 2008 levels and no other Sand A data points exist north of the NW fault, EPA cannot draw any definitive conclusions related to the September 2008 water level measurement for PT-AU.

Based on the absence of sufficient data points to show otherwise, the presence of nearby drinking water wells, and some indications of a possible recharge area, EPA agrees with the concerns raised by the commenter in this comment. Specifically, evidence suggests a possible Sand A recharge zone in and around the topographic high, as suggested by the commenter, which could alter the ground water flow direction in the area and impact capture zones of one or more of the water wells north of the NW fault. Additionally, the fact that Sand A was "dry" at well PT-AU during EPA's recent site visit, suggests drinking water wells north of the NW fault are completed in deeper sands. EPA does not have well specific completion zone data for all of the four wells north of the fault. EPA is therefore withdrawing the portion of the exemption north of the NW fault due to lack of conclusive data related to ground water flow direction and water well completion.

- 30. Comment:** EPA's two contour maps of the Sept 2012 ground water data show a southeast flow direction in the southeast part of the Sand B area, yet this was ignored and EPA assumed an eastward ground water flow direction between this area and the southeast wells of concern.

UEC's map of Sept 2012 data shows BMW-9 water level is lower than BMW-7 and 8, as well as a well in the central part of the Sand B mining area. This is not consistent with the EPA's eastward ground water flow direction assumption.

UEC ground water data show ground water is entering the Sand B area from the NW fault in the vicinity of BMW-7 and fanning out in multiple directions. EPA wrongly accepted UEC's assertion that some of the data points were outliers.

The Sept 2012 data set showed the lowest water levels of any of the data sets submitted to EPA. The other data sets showed flow to the southeast in the vicinity of BMW-7. This indicates there is a recharge area that flows into the exemption area near BMW-7.

**Response:** The commenter included a number of charts he constructed from various UEC ground water data sets collected over a four and a half year period from the Goliad site. EPA was unaware of two of the data sets (August 2008 and February 2009) since the raw data measurements (as opposed to contour maps) comprising them were not provided to EPA in the TCEQ application for the Goliad aquifer exemption or in subsequent requests to UEC for raw ground water elevation data during EPA's review. Based on an analysis of the commenter's information, EPA requested UEC to submit the August 2008 and February 2009 raw ground water elevation data sets referenced by the commenter. In response, UEC reported they had already provided EPA all the raw data sets they had in their possession during the review process. During this discussion, UEC agreed to conduct an additional round of data acquisition with EPA representatives present to witness the measurements.

On March 24, 2014, UEC surveyed the elevations for each of the 49 wells to be measured for water levels. At EPA's request, UEC used a state licensed and certified surveyor for the elevation measurements. The following day, EPA witnessed the ground water elevation measurements for all of the 49 wells and independently evaluated this raw data. Based on EPA's evaluation, the new data support EPA's conclusion that an overall eastward flow direction exists in the graben. These data did not indicate water entering the Sand B area from the NW fault and fanning out as discussed by the commenter.

EPA acknowledges that the March 2014 data set was collected during a period of drought and ground water data sets collected at different times can vary based on factors including precipitation amounts prior to data collection. EPA also believes these and other factors may result in periodic local variations in ground water flow direction. EPA never concluded the faults comprising the graben were completely non-transmissive to flow. Instead, EPA acknowledges some flow across the NW fault may occur, particularly in times of aquifer recharge. However, based on its evaluation of all available data (including the March 2014 data set) and public comments received, EPA concludes that the faults related to the graben alter the regional southeastward ground water flow direction and that a resulting overall eastward flow exists inside the graben despite local and/or temporal variations. In addition, the reduction in the size of the exemption area provides additional assurance that capture zones for the drinking water wells to the southeast do not intersect the exemption area, because the wells are now geographically farther away from the exemption area.

31. **Comment:** EPA is being inconsistent in its own representation of data. Why the map in slides 19 and 20 [of the Power Point presentation that EPA provided at the public hearing?] show a southeast direction of ground water flow while in slide 26, the local ground water flow is to the east?

**Response:** Slides 19 and 20 were contour maps from one data set (September 2012). Slide 26 was a generalized map for illustrative purposes only. The map is based on EPA's conceptual site model developed in consideration of all data. The arrows on the map are intended to show the southeastern regional gradient deflecting to east as water flows into the graben from the west.

32. **Comment:** There are errors in EPA's map of the Sand A data. This data actually indicates a northeast flow direction toward 15 Mile Creek in the northeast part of the area.

In slide 21, why there is a 158.093 in between the 159 and 158.8 contour lines? This makes no sense.

How does EPA explain all inconsistencies in slide 21: in the upper right hand corner, there are a 159 line and a 159.2 line then between them is a 159.831 line. On the 159 line is 158.7015 but to the right is 158.8?

**Response:** The commenters are correct in indicating there are contour errors on this Sand A map. However, these errors do not alter the map's indication that, as in EPA's other contour maps, localized variations exist, but the overall ground water flow direction is eastward in the area of the Sand B monitor well ring. During EPA's site visit in March 2014, ground water elevation data for Sand A were acquired on wells within the Sand B monitor well ring. These data also indicate an eastward flow direction in this area for Sand A and Sand B.

**33. Comment:** Water level survey point for BMW-7 was in fact an outlier.

**Response:** EPA initially accepted UEC's explanation that the 2008 ground water elevation survey for BMW-7 was an outlier when UEC provided additional re-measurements of the surface elevation of BMW-7 and its casing height above ground surface, two factors used to calculate the ground water elevation relative to sea level. The initial outlier determination was thought to be the result of an approximate 4 foot error in the well's surface elevation. It was revealed to EPA through public comment that BMW-7 had exhibited similarly high measurements in a prior data set. EPA re-assessed past data sets, including surface and water elevation measurements, and explanations from UEC on prior EPA data questions. EPA noted a number of inconsistencies in surface elevation and/or casing height above ground surface measurements that were suspect. Subsequent discussions with UEC revealed quality control issues in at least some of the previous surveys.

EPA then requested that UEC conduct another measurement event using a state licensed surveyor in which EPA would witness the ground water elevation measurements. The results of this new measurement event did not alter EPA's earlier determination that overall, ground water flows from west to east over the Sand B area with geographically local and/or temporal variations. However, EPA believes the high ground water elevations at BMW-7 may have indicated an intermittent flow across the fault in times of recharge.

**34. Comment:** The direction and rate of migration of contaminated ground water from mining area to drinking water supply wells has been and continues to be unanswered.

**Response:** EPA's criteria for approving an exemption is based on facts that show the regulatory criteria in 40 CFR § 146.4 are met. Restoration and movement of contaminants into adjacent aquifers are the responsibility of the approved UIC program of TCEQ.

EPA believes the direction of ground water flow within the graben has been sufficiently demonstrated to not impact capture zones of existing nearby drinking water wells. Ground water flows easterly in the graben and nearby drinking water wells to the southeast are not considered in the path of ground water flow from the proposed exemption. Therefore, EPA's analysis does not require the velocity of the ground water flow. As for the nearby drinking water wells to the north, EPA is withdrawing that part of the exemption north of the NW fault due to a lack of conclusive data in that area and limited data suggesting a complicated flow regime north of the fault. Additional

well construction data to the north, more monitoring wells, and aquifer analysis across the fault in the future could clarify the area north of the NW fault. In addition, with all mining restricted to within the graben, the NW fault, which is up gradient of the mining activity, alters any horizontal fluid movement to the north.

- 35. Comment:** Why was no attempt made to reconcile the February 2009 and August 2008 ground water elevation data as they show an elevation high at BMW-7 and the flow is to the southeast direction?

**Response:** In an attempt to demonstrate to EPA that the high ground water elevation recorded in BMW-7 in September 2008 was in error, UEC reported raw data on four events occurring in September 2008, March 2010, February 2012 and September 2012. EPA did not have the raw data for the ground water elevation calculations from 2009, rather only a computer drawn contour map whose contour lines that did not intersect the wells. EPA unsuccessfully attempted to acquire raw data for these data sets. However, the Agency did witness the acquisition of a new data set in March 2014. Based on a review of all available data sets, EPA agrees the NW fault may be transmissive in this area during times of recharge. However, the Agency also concluded that despite localized and/or temporal variations, the overall flow direction within the graben is to the east.

- 36. Comment:** Texas Water Development Board's Ground Water Availability Model (GAM) runs show ground water can migrate vertically up and down into the adjacent aquifers.

**Response:** The Texas Water Development Board's GAM is a regional scale model, with a grid size of one square mile. As such, there are limitations and assumptions which need to be made to develop local, site specific models based upon regional models, both horizontally and vertically. In the GAM, hydraulic conductivity and permeability in a given layer are assigned representative values across the layer and any local variability which may exist (and does exist in a fluvial depositional environment) are not accounted for by the model. Therefore, the GAM model is not an appropriate comparison for showing relationships between sands on a site specific basis.

- 37. Comment:** Commenter Craig Wall commented that the report prepared by Daniel B. Stephens & Associates is erroneous on many conclusions and that many of the assumptions included in the report are in direct disagreement with EPA's Considered Findings Report.

**Response:** The Daniel B. Stephens report notes that there are many limitations and assumptions used when developing a site specific model from a regional model. Homogenous hydraulic properties are assumed for each layer and even when grid spacing is reduced, homogeneity is still assumed. The report acknowledges that local complexities such as variations in hydraulic conductivity can be incorporated when developing a local model, but that in this case, there was insufficient information to do so. As a result, velocities derived from pump test data would be more reliable than those derived from a regional model. EPA acknowledges with the commenter that models developed by UEC and Daniel B. Stephens used differing assumptions regarding aquifer parameters when building their respective models. EPA considered the available data when developing a decision document.

- 38. Comment:** How has EPA accounted for preferential pathway movement in ground water aquifers, while at the same time relying on assumptions by the applicant that water moves only in certain directions?

EPA should determine whether channeling due to zones of higher permeability within the aquifer, the direction of ground water flow outside of the permit boundary, and the permeability of the SE Fault and the effects of that fault on ground water flow.

**Response:** EPA recognizes that preferential flow pathways can exist in geologic formations. EPA used a holistic approach by considering all existing ground water data in context with the geologic setting for the area, in particular the effects of the graben on ground water flow. Additionally, EPA supplemented the existing ground water data sets with a recent one (March 2014) witnessed by EPA scientists. While individual sand layers may have areas of higher or lesser permeability, sand layers on the site are separated by lower permeability clay layers that restrict flow between the sands, and ground water flow within the graben area has been determined to be generally west to east. Wells of concern to both the northwest and southeast were determined to be unaffected by potential mining in the graben area.

- 39. Comment:** How has EPA adequately addressed all previously stated concerns (hydrologic connection, flow directions, inconsistent data, inadequate monitoring, etc.?)

**Response:** EPA considered both existing data sets and the geological setting at the site to establish a hydrogeological conceptual model. Due to information submitted during the public comment period, EPA acquired an additional data set (March 2014) which was witnessed by EPA scientists. Based on the results of this approach, EPA analyzed water wells in the area with respect to their capture zone orientations and concluded these capture zones do not intersect the exemption area.

- 40. Comment:** For Sand B ground water levels, as shown on the EPA power point, why was only September 2012 data used? Many other data sets were supplied by UEC.

Why did EPA select the September 2012 data set even though it is missing a lot of data and it shows the lowest ground water levels?

**Response:** EPA selected some of its contour maps of September 2012 data for use in a Powerpoint presentation made available to the public via its website. This served as an example of an EPA developed map and was not meant to imply reliance on only this data set. Indeed, EPA contoured all raw data sets received from UEC and considered all of them in its decision.

- 41. Comment:** Craig Wall of UEC commented that Dr. W. Galloway testified that the two faults do not serve as a hydraulic connection between production sand and the thick clay layers that sandwich the production sands and the faults will restrict vertical ground water flow.

**Response:** EPA believes the faults could potentially be, to some extent, vertically and/or horizontally transmissive. However, EPA agrees with the commenter that the faults, at a minimum, form a constriction to ground water movement which results in lower hydraulic movement across the fault.

- 42. Comment:** Even more testing could be conducted on the NW fault. However, EPA states in its SOB for its decision that the possibility of fault transmissivity does not impact EPA's current use criterion because the capture zones of nearby DW wells are not interpreted to capture water from within the exemption boundaries. Therefore, more testing on the NW fault is not warranted.

**Response:** EPA believes that the capture zones of nearby drinking water wells will not intersect water within the current exemption boundary. If mining would occur in the future which could impact areas outside the graben near the NW Fault, additional site characterization would probably be warranted.

- 43. Comment:** UEC's deep injection well is planned to inject at a depth of 3200' with casing set to 1800'. Old dry hole wells drilled to depth to and beyond 3200' have neither production casing nor cement thereby providing a pathway for the injection fluid to be returned and contaminate the drinking water.

**Response:** The Class I disposal well described by the commenter is subject to the site assessment requirements in TCEQ's approved UIC program. A key component of these requirements is to demonstrate isolation from fresh water aquifers, including demonstrating that other wellbore penetrations will not serve as vertical conduits that could contaminate aquifers. See also "General response to comments related to the EPA's scope of review" above.

- 44. Comment:** Communication exists between Sands A and B either through the non-sealing NW fault or through the unplugged test bore holes or through open water well casings or through old gas wells/dry holes in the Weiser/Ander Gas Field.

**Response:** EPA acknowledges that possible vertical communication between ore bearing sands in the exemption area may exist; however, EPA concludes that none of the capture zones for nearby drinking water wells will intersect the exemption area.

- 45. Comment:** Proof exists that both the NW Fault and the SE Fault are non-sealing fault systems.

On what basis is EPA confident that the NW fault system is not transmissive?

UEC claimed the NW fault is sealing, but the TCEQ geologist, based on the 24 hour pump test data, said it showed communication across the fault. Logs, cross sections, loss of circulation while drilling and other items show it is a complicated zone with probable multiple faults, and is transmissive.

EPA geologists show the fault is transmissive by showing ground water flow through the fault instead of from the southwest if it was a sealing fault, yet they accept UEC's model of Ore body B ground water as being a sealing fault.

**Response:** EPA believes the faults could potentially be vertically and/or horizontally transmissive. However, EPA concluded that the faults, at a minimum, form a constriction to the ground water movement which results in a lower hydraulic flow across the fault. In addition, there is an eastward flow direction within the graben.

- 46. Comment:** Hydrologic connection between water in the exemption area and drinking water wells or other parts of the aquifer was not evaluated.

The ore bodies and the sand bodies are part of the aquifer that is a drinking water source for Goliad County. They are not isolated from the aquifer.

If one looks at water level data sheets, from 2010 March data to September of 2012 the very same wells dropped 5 foot in water level, and that is consistent with the water level drop that the ground water district has noted in north Goliad County.

**Response:** Hydrologic connection is not necessarily relevant to whether the exempted portion of the aquifer currently serves as a source of drinking water because drinking water wells can have a hydrologic connection to the exemption area, but never capture water from that area. In such a case, the exempted portion of the aquifer would not be a current source of water for those wells.

47. **Comment:** Selecting a few wells pumping from the Sand B as the basis for the entire exemption of Sands A, B, C, and D ignores that there is now, and may be in the future, a user in a different direction receiving water from another sand. Fifteen Mile Creek is a "user" by virtue of being a gaining stream.

**Response:** The purpose of EPA's UIC regulations and all EPA-approved State UIC programs is the protection of underground sources of drinking water ("USDWs") from endangerment as a result of underground injection. 42 U.S.C. § 300h (b)(1). EPA's regulations prevent endangerment by prohibiting injection activities that allow the movement of fluid containing contaminants into a USDW if the presence of the contaminants may cause a violation of drinking water standards or otherwise adversely affect the health of persons. Fifteen Mile Creek is not an underground source of drinking water. See also "General response to comments related to the EPA's scope of review" above.

48. **Comment:** There has been literally no work done to characterize the aquifer system and its interaction with the NW Fault. Clearly, there is so little known about the NW Fault and ore Bodies A, C and D that granting this blanket aquifer exemption for all four ore bodies is an obvious mistake.

Ore bodies A, C and D are along the northwest part of the site and were not characterized in any detail, and PAA studies were never performed, yet they were included in the exemption.

**Response:** As discussed in detail elsewhere in this document, EPA is withdrawing the portion of the exemption area north of the NW fault as a result of analysis of additional data received during the public comment period. See also response to Comment 25.

49. **Comment:** The GCGCD submitted an annotated air photo showing the location of 8 drinking water wells south and east of the proposed aquifer exemption site. GCGCD asked for the development of the capture zones for these wells and the scientific data to support those determinations.

**Response:** EPA examined this photo and compared it to maps used in the exemption application. Seven of the eight well locations depicted in the photo are southeast of the exemption area. EPA concluded the capture zones for these drinking water wells do not intersect the exemption area because of the eastward direction of ground water flow within the graben. The eighth well described in the comment is located approximately 0.6 miles in a near due east direction from the northernmost point of the exemption area. The well is located within the graben, where the interpreted ground water flow direction is eastward. UEC told EPA that it has contacted the property owner and the owner has agreed to have a new well drilled and completed in Sand B or in Sand A at a location 600' to the north or northeast. EPA confirmed with the property owner that

this new well will be drilled. The new location will result in a well that would not capture water from the exemption area due to the interpreted eastward ground water flow in the exemption area.

- 50. Comment:** Commenter describes there is a creek branch on the church property that catches water from the proposed aquifer exemption site and empties into the Eighteen Mile Coleta Creek then into the Guadalupe River and San Antonio Bay near Seadrift, Texas. There was no characterization done to study the possibility of in-situ mining leading to the contamination of the Coleta Creek and the recreational reservoir into which it flows. There is no guarantee that the Coleta Creek would not be contaminated. This water body receives water from the Goliad aquifer. What is EPA doing to ensure that the waste will remain in the exemption area (Guidance 34, attachment 3, pg 3)?

**Response:** See "General response to comments related to the EPA's scope of review" above.

- 51. Comment:** UEC has reduced the area for its aquifer exemption request but water does not respect the boundaries drawn on the ground above it. The aquifer is still used as a source of drinking water.

**Response:** EPA's aquifer exemption regulations allow for the exemption of a portion of an aquifer if it does not currently serve as a source of drinking water and it contains minerals or hydrocarbons that, considering their quantity and location, are expected to be commercially producible. As explained in a previous response, EPA identified drinking water wells closest to the boundary of the exemption and concluded that the wells do not use water which would intersect the exempted portion of the aquifer. Therefore, although EPA agrees with the commenter that water does not respect boundaries drawn on a map, based on its technical review, EPA disagrees that the exempted portion of the aquifer is used as a current source of drinking water.

- 52. Comment:** The map needs to show capture zone of wells that are down gradient from the production area.

**Response:** EPA's assessment of drinking water wells included drinking water wells nearest to the aquifer exemption area which had the potential to capture water from the exempted zone. EPA concluded that these wells do not use water which would intersect the exempted portion of the aquifer.

- 53. Comment:** The SDWA plan is to protect ground water resources by protecting aquifers, not exempting individual mining ventures. Now EPA decided that "use" only means capture zone of a currently pumping well. No consideration of time is given in this concept and travel time from Sand B is not done.

**Response:** EPA's regulations allow applicants to satisfy the future use criteria in 40 CFR § 146.4 (b) by demonstrating an aquifer or portion thereof contains minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible. EPA used a capture zone analysis to determine whether wells outside of the exempted area draw water from the exempted portion of the aquifer and concluded they do not. The potential future migration of contaminants into adjacent aquifers from an exempted, commercially mineable area is the responsibility of the EPA-approved State UIC program. See also "General response to comments related to the EPA's scope of review" above.

**54. Comment:** Because of the complexities involved with the fault zone, safely mining these zones will be impossible. There should be no exemption for areas and levels encompassing Sands A, C and D.

**Response:** Based on an assessment of all relevant data, EPA is withdrawing the part of the exemption area north of the NW fault. As more fully described in the Statement of Basis for its decision, the capture zones for the closest wells of concern will not draw water from the exempted portion of the aquifer within the graben south of the NW fault.

**55. Comment:** EPA has not done, or required UEC to do, the necessary characterization of the NW Fault zone and develop a monitoring system for mining of the three related ore bodies.

**Response:** EPA received information during the public comment period that calls into question EPA's prior characterization of the area of the NW fault. As a result, EPA is withdrawing the approval for that part of the exemption area north of the NW fault. See also "General response to comments related to the EPA's scope of review" above.

**56. Comment:** TCEQ's responses acknowledged the migration of ground water, yet never addressed protection for nearby water wells. Neither TCEQ nor EPA has provided a ground water protection plan that ensures that the Ander community ground water wells will not have contamination of drinking water supply over the long term. Commenter is concerned about the aquifer and the long term effects of the mining and asks how is EPA going to ensure that the aquifer is usable and safe in the future?

**Response:** Based on capture zone assessment, EPA does not believe the existing nearby drinking water wells near Ander are down gradient of the exemption area and therefore do not draw water from the exempted portion of the aquifer. See "General response to comments related to the EPA's scope of review" above.

**57. Comment:** Local people do not have resources for digging a new well in a deeper zone. UEC did not offer any reasonable financial assistance for restoration of local water wells. We have been living in the area for 36 years but never experienced any problems with the water wells until UEC explored the mine. We do not have the financial ability to make adjustments to water wells as a result of UEC's actions

**Response:** See "General response to comments related to the EPA's scope of review" above.

**58. Comment:** Is EPA planning to set up a compensation fund for landowners who may have future issues? What recourse will landowners have if they have future problems?

**Response:** Because TCEQ has "primary enforcement authority", it is responsible, in the first instance, for implementing and enforcing the approved UIC program, including laws and regulations that meet EPA's minimum standards for state primacy, including certain minimum requirements for Class III permits. Accordingly, concerns about any future impacts outside of the exemption area from mining operations should be first directed to TCEQ. EPA, however, retains the ability to enforce the State's approved program. 42 U.S.C. § 300h-2; 40 C.F.R. § 147.1(e). EPA also has broad authority to take any action necessary to prevent an imminent and substantial endangerment to the health of persons where the State or local authorities have not acted to protect the health of such

persons. 42 U.S.C. § 300i. See "General response to comments related to the EPA's scope of review" above.

- 59. Comment:** Statements were made by EPA that current and future use were considered, but it does not appear future use was considered as part of the decision. How can the fact that new wells can and will be drilled near the exemption boundary in the future be taken into account? How will landowners be notified?

**Response:** EPA determined that the application met the criterion of 40 CFR § 146.4(b), the "future use" criterion, because UEC's permit application demonstrated that the aquifer contained commercially producible levels of uranium. See also "General response to comments related to the EPA's scope of review" above.

EPA recognizes that even though 40 C.F.R. § 146.4(b) requires a demonstration that an aquifer "cannot now and will not in the future serve as a source of drinking water" the resulting exempted aquifer may *in fact* be used in the future as source of drinking water. At the time EPA reviews an aquifer exemption for approval, no one can possibly know whether in fact the exempted aquifer will be used in the future. Consequently, the specific regulatory criteria EPA established in 146.4(b)(1), (2) and (3) serve as proxies for identifying those aquifers which are not likely to be used in the future. This is reflected in EPA's description of exempted aquifers as "those [aquifers] which would otherwise qualify as 'underground sources of drinking water' to be protected, but which have no real *potential* to be used as drinking water sources." (40 C.F.R. § 144.1(g)(emphasis added). Landowners and potential landowners are notified of an aquifer exemption application through the public notice provided during the review process. Whether and how landowners are notified of an EPA-approved aquifer exemption are generally matters left to States. EPA regions keep a record of aquifer exemptions.

- 60. Comment:** Prior to EPA's approval, the Goliad sands qualified under the criteria at 40 CFR § 144.3 as an underground source of drinking water.

**Response:** EPA's regulatory definition of "underground source of drinking water" excludes exempted aquifers. 40 C.F.R. 144.3(b). EPA agrees with the commenter that the portion of the Goliad aquifer EPA is approving for exemption otherwise meets the definition of a USDW in EPA's regulations at 40 C.F.R. 144.3 because it contains sufficient quantity of ground water to supply a public system and it contains fewer than 10,000 mg/l total dissolved solids. See also "General response to comments related to the EPA's scope of review" above.

- 61. Comment:** EPA ignores voluminous data on ground water contamination outside the exempted zone presented in several publications of studies at other sites in Wyoming and Texas and a lack of a long term monitoring program.

**Response:** EPA acknowledges published material related to the issues mentioned by the commenter, but it was not relevant to EPA's aquifer exemption analysis. See also "General response to comments related to the EPA's scope of review" above.

- 62. Comment:** The obvious political maneuvering in this aquifer exemption is despicable. The Goliad aquifer exemption was a political rather than a technical decision, influenced by outside lobbyists.

**Response:** EPA only relied on data that it independently analyzed. EPA scrutinized the veracity of the data it received, rejected some UEC-provided explanations for adverse readings, and only credited the evidence before it when appropriate. Accordingly, EPA's decision was based on a technical analysis of the data.

- 63. Comment:** EPA is our last line of defense in protecting the DW supply in this area. Please do not approve this aquifer exemption.

**Response:** The commenter is correct that EPA has the final role in all aquifer exemption requests. Based on its review of all data associated with the exemption request, EPA did not identify a basis for complete denial of the request. However, EPA has substantially reduced the area of exemption in two separate instances, including in response to public comments in this action. See also "General response to comments related to EPA's scope of review" above.

- 64. Comment:** Victoria is not the best location for local meeting. It is around 30 miles away. The evening meeting is too late for people to attend. The meeting should have been in Goliad County and either on Friday or Saturday so more affected people could come.

**Response:** While EPA preferred a location closer to Goliad, EPA could not find a location that would accommodate the projected attendance in Goliad. Based on previous meetings, EPA estimated needing a location large enough to hold at least 400 people. In addition, EPA was also constrained by the date for the public hearing (EPA's public participation regulations direct the Agency to provide at least 30 days advance notice of the hearing) due to the limited duration of the Court's remand.

- 65. Comment:** Contaminating the aquifer in Goliad would seem criminal and the damage would be irreparable.

**Response :** EPA disagrees. Once EPA decides to approve an aquifer exemption (based on facts that showing the regulatory criteria in 40 CFR § 146.4 are met), the injection activity within the exempted portion is no longer prohibited by law. See also "General response to comments related to the EPA's scope of review" above.

- 66. Comment:** Commenter attended a prior Goliad meeting held by the State and asked if there was any guarantee that the 25 springs that feed Coletto Creek wouldn't eventually become contaminated. He later received a letter from TCEQ responding he doesn't have standing on the Goliad matters despite living in Victoria County.

**Response:** EPA's decision to approve an aquifer exemption is based on facts showing the regulatory criteria in 40 CFR § 146.4 are met. Accordingly, this evaluation does not look at a State's legal interpretation on an individual's ability to bring a legal action in State proceedings. See also "General response to comments related to the EPA's scope of review" above.

- 67. Comment:** EPA should consider the moral issues involved in the decision to exempt the Goliad Aquifer.

**Response:** EPA based its decision on the regulatory criteria in 40 CFR § 146.4. See also "General response to comments related to the EPA's scope of review" above.

- 68. Comment:** By granting UEC this exemption, EPA is allowing the pollution at Ander and is setting a precedent for pollution to occur in other areas of Goliad County.

**Response:** EPA disagrees. EPA determined that the portion of the aquifer proposed for exemption does not currently serve as a source of drinking water. See also "General response to comments related to the EPA's scope of review" above.

- 69. Comment:** When EPA requests further study of an aquifer, should regulators in Agreement States be allowed to circumvent protection of the aquifer by invoking technicalities?

**Response:** See "General response to comments related to the EPA's scope of review" above.

- 70. Comment:** When sound science strongly recommends that extensive modeling be done the area proposed for in-situ mining, should narrow state regulations take precedence over those recommendations? The commenter takes exception that TCEQ did not require the company to perform modeling that EPA suggested.

**Response:** TCEQ could make the desired demonstration through a two-phased modeling exercise. Nonetheless, EPA also contemplated that TCEQ or UEC could seek to make the necessary demonstration by alternate methods (Letter to Zak Covar dated May 16, 2012). In the end, rather than rely on modeling, EPA developed an alternative methodology for a "capture zone analysis," in order to qualitatively determine whether nearby drinking water wells would draw water from the proposed exemption area. Thus, although EPA did not have the modeling analyses it had initially requested, EPA utilized ground water elevation data sets, contour maps of these data sets, geologic cross sections, water well capture zone calculations, pump test data, and related maps to accomplish the same goal.

- 71. Comment:** If leading scientists who have studied the Goliad Aquifer warn of its unsuitability for uranium mining, should not that information be considered as critical before EPA grants and aquifer exemption?

**Response:** EPA based its approval on the regulatory criteria at 40 C.F.R. § 146.4. See also "General response to comments related to the EPA's scope of review" above.

- 72. Comment:** A number of Goliad County residents found ourselves rudely and arbitrarily treated by TCEQ at a contested case hearing in Austin, TX. They were not allowed to present contamination evidence on water wells five miles away.

**Response:** After Texas's notice and comment period ended, EPA held its own public notice and comment period in which EPA solicited public comment on EPA's approval of TCEQ's aquifer exemption request, and in particular, information that EPA relied upon for decision-making that may not have been available when TCEQ approved the aquifer exemption. EPA solicited any relevant new information on the aquifer exemption from January 8, 2014, to February 14, 2014.

- 73. Comment:** The Goliad aquifer exemption is a non-substantial revision to the Texas approved UIC program and EPA is not required to seek public comment.

**Response:** EPA must approve all revisions to EPA-approved State UIC programs. The process differs depending on whether EPA treats it as a substantial or non-substantial program revision. EPA treated this as a non-substantial program revision because it is associated with the issuance of a site-specific Class III permit action, not a state-wide programmatic change or a revision with implications for the national UIC program. The decision to treat this as a non-substantial program revision is also consistent with EPA's Guidance 34 and historic practice for aquifer exemption requests related to in situ mining operations in Texas. EPA's Guidance 34 (July 1984), indicates that the determination as to whether a program revision is substantial or non-substantial will be made on a case-by-case basis, but suggests that EPA will treat revisions as "substantial" if they are exemptions of high quality aquifers (less than 3,000 mg/TDS) related to Class I wells or exemptions not related to action on a permit. See also 48 Fed. Reg. 40098, 40108 (1983). The Goliad Aquifer Exemption request does not fall within any of these categories. Although EPA is treating this as a non-substantial program revision, EPA did provide opportunity for public participation (notice and comment, and a public hearing) similar to that provided if EPA had treated this as a substantial program revision.

EPA also notes that Texas has an approved UIC program. As such, Texas, not EPA, must conform with the procedural requirements of 40 CFR § 144.7(b)(3). 30 Tex. Admin. Code § 331.1(a). TCEQ provided notice of its identification of the aquifer exemption, solicited comments, held public meetings, and provided an adversarial hearing in front of an administrative law judge. Because EPA was acting on Texas' request for an aquifer exemption and had determined that the revision was non-substantial, EPA had no obligation under 40 CFR § 144.7(b)(3) to conduct another round of notice and comment.

That being said, EPA retains the discretion to take additional public notice and comment in order to request additional information. Accordingly, EPA asked the Court for a voluntary remand of the aquifer exemption decision without vacating the exemption in order to allow EPA to offer an additional opportunity for public notice and comment. During this period, EPA solicited and received additional information which it is addressing here.

- 74. Comment:** The aquifer should be considered as a whole rather than dissecting pieces to grant aquifer exemptions for leach mining ventures.

**Response:** In recognition of the broad definition of USDWs and the commercial use of underground injection, EPA regulations state that an aquifer or *portion thereof* [emphasis added] may be designated as an "exempted aquifer" if it meets the criteria for exemption in 40 CFR § 146.4.

- 75. Comment:** This aquifer serves as a source of drinking water for a number of domestic and livestock wells and could be future source of drinking water for Goliad County.

**Response:** EPA determined that TCEQ's application for an aquifer exemption met the "future use" criterion of 40 CFR § 146.4(b)(1) based on UEC's permit application, which demonstrates that the aquifer contains commercially producible levels of uranium. See also EPA's response to Comment 59 above on the future source criterion. EPA determined that the portion of the aquifer within the

graben south of the NW fault does not currently serve as a source of drinking water for human drinking water wells. (See EPA's response to Comment 21 related to capture zone analysis).

The presence of livestock wells was not relevant to EPA's evaluation of this aquifer exemption. They did not factor into the "current source" analysis because EPA considers only whether the aquifer is currently serving as a source of human drinking water. The purpose of the Safe Drinking Water Act in general and the UIC program in particular is to provide water that is safe for human consumption. The SDWA provides that "underground injection endangers drinking water sources if such injection may result in the presence in underground water which supplies or can reasonably be expected to supply any *public water system* of any contaminant, and if the presence of such contaminant may result in such system's not complying with any *national primary drinking water regulation* or may otherwise adversely affect the health of *persons*." 42 U.S.C. § 300h (d)(2) (emphasis added). A public water system provides water for human consumption and national primary drinking water standards are developed for contaminants that "may have an adverse effect on the health of persons" (42 U.S.C. § 300g-1(b)(1)(A)).

This interpretation of SDWA as protecting water for human consumption is reflected in EPA's UIC regulations, most prominently in the definition of "underground source of drinking water" which uses the phrase "human consumption" and the prohibition of fluid movement fluid into USDWs which uses the phrase "or may otherwise adversely affect the health of persons." (40 C.F.R. §§ 144.3 and 144.12.) It is also reflected in associated preambles. For example, in describing a Director's discretion to issue aquifer exemptions in EPA's initial promulgation of Part 146, EPA stated "that a Director may designate as an exempted aquifer or aquifer portion which does not already provide water for *human consumption* but is capable of yielding water with a concentration of fewer than 10,000 mg/l of TDS, if the aquifer or its portion is..." 45 Fed. Reg. 42472, 42480 (June 4, 1980) (emphasis added). See also 47 Fed. Reg. 4992, 4993 (February 3, 1982).

In some cases, the existence of livestock wells may be relevant for evaluating the potential for an aquifer to serve as a future source of human drinking water (e.g., aquifer exemptions based on regulatory criteria in § 144.6(b)(2) or (b)(3)). In this case, however, the existence of livestock wells is not relevant to the demonstration, required by § 146.4(b)(1), that the exempted portion of the aquifer contains minerals that are expected to be commercially producible.

- 76. Comment:** Statutory language in the SDWA requires that no underground sources of drinking water will be endangered by any underground injection. I do not understand how the EPA can so blatantly ignore the fact that the water within the proposed aquifer exemption area will someday be a source of drinking water for a populated area of Goliad County.

**Response:** See previous responses for Comments 53 and 59 regarding commercially mineable aquifers and designation of those areas as exempted. See also "General response to comments related to the EPA's scope of review" above.

- 77. Comment:** An aquifer exemption cannot be granted if the aquifer is a source of drinking water

**Response:** EPA agrees that an aquifer exemption is only available under 40 C.F.R. 146.4(a) if the aquifer or a portion thereof "does not currently serve as a source of drinking water," but as noted elsewhere in this document and the Statement of Basis, once that criterion is met, an aquifer exemption is available if it can be shown that it is mineral, hydrocarbon, or geothermal energy

producing, or can be demonstrated by a permit applicant for a class II or III operation to contain minerals or hydrocarbons that considering their quantity and location are expected to be commercially producible.

- 78. Comment:** If EPA allows uranium mining to happen in our community, whether it is Uranium Energy Corp. or someone else, it will jeopardize the health and livelihoods of all those who make Goliad county what it is today.

**Response:** As described in EPA's "General response to comments related to the EPA's scope of review" above, there is State and federal regulatory scheme in place to protect public health. As explained in 40 C.F.R. § 144.35 (and comparable State regulations as per 40 C.F.R. § 145.11(a)(14)), "[t]he issuance of a UIC permit does not convey any property rights of any sort, or any exclusive privilege, nor does it authorize any injury to persons or property or invasion of other private rights, or any infringement of State or local law or regulations." Consequently, a UIC permit does not address the rights or privileges associated with property or livelihoods. Similarly, EPA's approval of an aquifer exemption does not address those matters.

- 79. Comment:** Texas regulations (30 TAC Chapter 331) fail to address the issues of how to evaluate baseline conditions and estimate restoration standards.

Regulations should include protocols, which would be used to minimize biases introduced by drilling and well-construction practices.

**Response:** See EPA's "General response to comments related to the EPA's scope of review" above.

- 80. Comment:** Critical review and update of the EPA ISL uranium mining standards are necessary and timely. EPA can implement this task following the key principles in Executive Order 13563, Improving Regulations and Regulatory Review. (SAB Report Feb 17, 2012)

**Response:** The SAB recommendations were not directed to UIC regulations for the aquifer exemption process. EPA is in the process of developing proposed revisions to its regulations in 40 C.F.R. part 192 to add new public health, safety, and environmental protection standards to regulations published under the Uranium Mill Tailings Radiation Control Act of 1978 ("UMTRCA"); EPA expects that those proposed revisions will appropriately incorporate advice from the SAB's Radiation Advisory Committee's report of Feb. 17, 2012.

- 81. Comment:** We are concerned about food safety due to cattle uptake of Uranium. Submitted the list of livestock water wells located near or in the proposed aquifer exemption.

**Response:** EPA did not consider livestock wells in its evaluation of the aquifer exemption. EPA notes, however, that Texas considered whether the proposed in situ uranium mining activities will negatively impact livestock in its connection with its issuance of the UIC permit. See AR 210 at 87-89 and AR 233 at 33. See also EPA's response to comment #75 and EPA's "General response to comments related to the EPA's scope of review" above.

- 82. Comment:** The GCGCD has made the determination that UEC has not provided enough evidence that ground water will not be contaminated.

**Response:** EPA recognizes that local water in the portion of the aquifer that is exempted will be contaminated by the mining operations. It is the nature of the mining process. Mineral deposits affixed to host rock and immobile are chemically treated to be released from the host rock so that they might be collected and produced through production wells. The local ground water provides the base and is the carrier for the oxygenated mix that will cause release to occur. The detrimental effects of this process on the ground water are recognized. That is why the aquifer must qualify for an aquifer exemption prior to being mined.

EPA believes the direction of ground water flow within the graben has been sufficiently demonstrated to not impact capture zones of existing nearby drinking water wells. Because ground water flows easterly in the graben, nearby drinking water wells to the southeast are not considered in the path of ground water flow from the proposed exemption area, and therefore, EPA's analysis does not require the velocity of the ground water flow. As for the nearby drinking water wells to the north, EPA is withdrawing that part of the exemption north of the NW fault due to a lack of critical data in that area and limited data suggesting a complicated flow regime north of the fault. In addition, with all mining restricted to within the graben, the NW fault, which data suggest is horizontally restrictive and up gradient of the mining activity, serves as a constriction to fluid movement to the north.

**83. Comment:** Encourage UEC to look other places for mining.

**Response:** EPA's role is to review TCEQ's aquifer exemption request. See EPA's "General response to comments related to the EPA's scope of review" above.

**84. Comment:** I have over 40 years of experience in this industry as a drilling engineer. EPA and regulatory agencies should require high definition seismic, 3D Seismic, advanced logging technology, and down-hole telemetry as requirements for the permits. High definition seismic and 3D seismic would characterize correctly the aquifer, validate pump tests, and identify the exact location of the faults. An advanced logging program would validate the rock mechanics.

**Response:** Neither EPA nor TCEQ approved UIC programs have requirements for seismic surveys or other technologies mentioned by the commenter for subsurface site characterization of in-situ uranium mining sites. Instead, these programs routinely utilize wellbore data, including geophysical wellbore data to characterize subsurface geology.

**85. Comment:** One commenter noted that EPA staff expressed their concern with the proposed exemption area in various internal emails that were included in the Administrative Record for the original approval. This correspondence included concerns about (1) the hydrologic connection with the drinking wells; (2) groundwater flow direction; (3) communication between aquifer sands; (4) inadequate monitoring for contamination; and (5) inadequate UEC modeling and inconsistent UEC data. Comment also suggested UEC may have left a few domestic water wells off their map. In light of all these documents demonstrating concerns by EPA's own staff, commenter wants to know how EPA has adequately addressed these concerns.

**Response:** EPA's re-evaluation of the aquifer exemption involved a consideration of the issues at hand in the emails referenced above such as the validity and sufficiency of data, communication between the sands, and the transmissivity of the northwest fault. EPA's initial and current review of this aquifer exemption included an evaluation of complex scientific data within the agency's technical expertise. The presence of conflicting arguments and dissent among those experts only demonstrates that EPA fully considered a number of factors and contrary opinions prior to the Agency's original aquifer exemption approval. The commenter overstates the significance of internal EPA e-mails that express concerns regarding the aquifer exemption. The emails reflect the preliminary opinions of EPA staff members, not the formal final assessment of EPA which is based on a consideration of the entire record. With regard to the 7 wells referenced in this comment, see response to comment 49.